

Claims

1. A power management method of an electronic device that can be operated under at least a first operation state and a second operation state, said electronic device having a first power mode and a second power mode, said method comprising steps of:
 - setting up a sampling time span that includes a plurality of sampling time units;
 - determining the operation state of said electronic device at each said sampling time unit;
 - calculating a first ratio of said sampling time units in which said electronic device is operated under said first operation state; and
 - operating said electronic device according to said first ratio, wherein said electronic device is switched to said first power mode when said first ratio is larger than a predetermined value, wherein said electronic device is switched to said second power mode when said first ratio is smaller than the predetermined value.
2. The power management method according to claim 1, wherein determining the operation state of said electronic device at said sampling time unit comprises steps of:
 - calculating an accumulated quantity of transferred data at the beginning of said sampling time unit;
 - calculating a temporary accumulated quantity of transferred data at the end of said sampling time unit; and
 - comparing said temporary accumulated quantity of transferred data with the accumulated quantity of transferred data; and
 - setting the operation state of said electronic device during said sampling time unit as being said first operation state when said temporary accumulated quantity of transferred data substantially equals to said accumulated quantity of transferred data.
3. The power management method according to claim 2, wherein said first operation state is idle state and said first power mode is off mode, and said predetermined value is between 0.8 and 1.
4. The power management method according to claim 2, wherein said first operation state is

idle state and said first power mode is off mode, and said predetermined value is between 0.85 and 0.95.

5. A power management method of an electronic device that can be operated under at least a first operation state and a second operation state, said electronic device having a first power mode and a second power mode, said method comprising steps of:

setting up a sampling time span that includes a plurality of sampling time units;

determining the operation state of said electronic device at each said sampling time unit;

calculating a first number of sampling time units in which said electronic device is operated under said first operation state; and

operating said electronic device according to said first number, wherein said electronic device is switched to said first power mode when said first number is larger than a predetermined value, wherein said electronic device is switched to said first power mode when said first number is larger than a predetermined value, and wherein said electronic device is switched to said second power mode when said first number is smaller than the predetermined value.

6. The power management method according to claim 5, wherein determining the operation state of said electronic device at said sampling time unit comprises steps of:

calculating an accumulated quantity of transferred data at the beginning of said sampling time unit;

calculating a temporary accumulated quantity of transferred data at the end of said sampling time unit; and

comparing said temporary accumulated quantity of transferred data with the accumulated quantity of transferred data; and

setting the operation state of said electronic device during said sampling time unit as being said when said temporary accumulated quantity of transferred data substantially equals to said accumulated quantity of transferred data.

7. A power management system of an electronic device that can be operated under at least a first operation state and a second operation state, said electronic device having a first power mode and a second power mode, said power management system comprising:

a setup unit for setting up a sampling time span including a plurality of sampling time units;

a state determination unit for determining the operation state of said electronic device at each said sampling;

an arithmetic unit for calculating a first ratio of said sampling time units in which said electronic device is operated under said first operation state; and

a decision unit for operating said electronic device according to said first ratio, wherein said electronic device is switched to said first power mode when said first ratio is larger than a predetermined value, wherein said electronic device is switched to said second power mode when said first ratio is smaller than the predetermined value.

8. The power management system according to claim 7, wherein the state determination unit further comprising:

a first calculation unit for calculating an accumulated quantity of transferred data at the beginning of said sampling time unit;

a second calculation unit for calculating a temporary accumulated quantity of transferred data at the end of said sampling time unit; and

a check unit for comparing said temporary accumulated quantity of transferred data with the accumulated quantity of transferred data, and setting the operation state of said electronic device during said sampling time unit as being said first operation state when said temporary accumulated quantity of transferred data substantially equals to said accumulated quantity of transferred data.

9. The power management system according to claim 8, wherein said first operation state is idle state and said first power mode is off mode, and said predetermined value is between 0.8 and 1.

10. The power management system according to claim 8, wherein said first operation state is

idle state and said first power mode is off mode, and said predetermined value is between 0.85 and 0.95.

11. A power management system of an electronic device that can be operated under at least a first operation state and a second operation state, said electronic device having a first power mode and a second power mode, said power management system comprising:

- a setup unit for setting up a sampling time span including a plurality of sampling time units;

- a state determination unit for determining the operation state of said electronic device at each said sampling;

- an arithmetic unit for calculating a first number of said sampling time units in which said electronic device is operated under said first operation state; and

- a decision unit for operating said electronic device according to said first number, wherein said electronic device is switched to said first power mode when said first number is larger than a predetermined value, wherein said electronic device is switched to said second power mode when said first number is smaller than the predetermined value.

12. The power management system according to claim 7, wherein the state determination unit further comprising:

- a first calculation unit for calculating an accumulated quantity of transferred data at the beginning of said sampling time unit;

- a second calculation unit for calculating a temporary accumulated quantity of transferred data at the end of said sampling time unit; and

- a check unit for comparing said temporary accumulated quantity of transferred data with the accumulated quantity of transferred data, and setting the operation state of said electronic device during said sampling time unit as being said first operation state when said temporary accumulated quantity of transferred data substantially equals to said accumulated quantity of transferred data.